

PART 1 - GENERAL

- 1.1 Introduction .1 The major trees within the area of the Work were felled and removed under a previous contract. The clearing work included in this Contract requires additional clearing of smaller trees and bush in the area of the Work. The clearing work included in this Contract includes clearing of all remaining felled trees, timber, brush and other organics remaining in the area of the Work.
- 1.2 Measurement and Payment .1 The unit prices bid for these items shall be full compensation for all work necessary and incidental for clearing and grubbing to the limits indicated in the Drawings and as directed by the DR. Payment shall be made at the unit prices tendered in the unit price table of the Contract.
- .2 The price bid for clearing shall include, but not be limited to: falling trees and brush and removing from site, and all other work necessary to complete this portion of the Work to the satisfaction of the DR.
- .3 The price bid for grubbing shall include, but not be limited to: excavating and disposing off site of stumps and roots to the subgrade elevation, and all other work necessary to complete the Work to the satisfaction of the DR. This will also include stumps stockpiled off site and brought back to site to act as large woody debris.
- .4 Measurement for payment for clearing shall be at the per hectare of area cleared, measured in the field, and completed to the satisfaction of the DR. Clearing of felled trees, timber, brush and other organics left on the trail alignment by the clearing contractor shall be included in the payment.
- .5 Measurement for payment for grubbing shall be at the per hectare of area grubbed, measured in the field, and completed to the satisfaction of the DR.
- ~~.6 Measurement for payment for survey of the cleared slope area and grubbed slope area shall be lump sum. Payment at the lump sum rate tendered will be made when the digital survey is delivered to the satisfaction of the DR.~~
- 1.3 Definitions .1 Clearing: Cutting of trees, brushing vegetative growth to ground level and disposing of felled trees, previously uprooted trees and stumps, limbing of trees on either side of the trail, and surface debris.
- .2 Grubbing: Excavating and processing of stumps and roots located within 150 mm of the existing ground surface as described in Clause 1.2.3, above.
- .3 Chipping: Mechanically breaking down of all vegetation up to 120 mm in diameter into chips not over 100 mm long, 25 mm wide and 10 mm thick.
- .4 License to Cut: License required by Contractor under Province of BC's Forest Act that authorizes a Contractor to salvage and remove timber from Crown Land.
- .5 Merchantable Timber: Timber greater than 120 mm diameter at breast height and suitable for salvage. This material is the property of Parks Canada and shall be delivered to a location within the Park Reserve, as directed by the DR.
- .6 Amphibian Zones: Areas of the Park Reserve identified during the environmental studies as having a significant amphibian population and suitable habitat to support the amphibian populations and those areas critical to amphibian
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- migration.
- .7 Wetland: Refer to section 01 35 43 – Environmental Procedures, Clause 1.2.4..8  
Watercourse: See section 01 35 43 – Environmental Procedures, Clause 1.2.5.
- .8 Riparian Area: See Section 01 35 43 – Environmental Procedures, Clause 1.2.7.
- 1.4 Protection
- .1 Prevent damage to trees, site appurtenances, watercourses, root systems of trees, all natural features and artificial structures that are to remain. Particular attention should be given to protecting the cut-slope above the middle trail segment from Station 280 to 315.
- .2 Repair any damaged items to satisfaction of DR.
- .3 Protect nesting birds in accordance with Section 01 35 43 – Environmental Procedures. No clearing shall be permitted between March 12 and August 17.
- If clearing of additional trees or vegetation is required during this timeframe, then the work must be preceded with a pre-clearing nest survey completed by the OEM, in accordance with the PCA Migratory Bird Guidance and Migratory Bird Convention Act. It is the Contractor’s responsibility to communicate and update the schedule and provide at least 10 days’ notice of activities during this period. Due to the complexity of habitat in the Project area, the OEM has the authority to stop work or restrict clearing activities during this window if an active nest is found.
- .4 Clearing and grubbing of archaeological sites shall be in accordance with Section 01 35 44 – Cultural Resource Procedures.
- .5 Work Around and Protection of Roots:
- .1 Tree roots less than 5cm diameter of trees to be retained next to the trail exposed during grubbing should be cut cleanly with a sharp axe, tree looper or saw, and the disturbed edge covered with plastic until backfilled, or the root should be sealed with a wound dressing.
- .2 Structural tree roots greater than 5cm diameter of trees to be retained next to the trail exposed during grubbing should be hand excavated to avoid damage to roots and fabric shall be placed over exposed roots.
- .3 Avoid impacting structural/tap roots (>5 cm diameter that provide stability for the tree) and dig by hand around them if possible;
- Tree roots exposed during excavation should be cut cleanly with a sharp axe, tree looper or saw, and the disturbed edge covered with plastic or fabric until backfilled. Seal the root with wound dressing;
- Limit compaction around and over the tree roots; avoid treading on roots with heavy equipment
- .6 Additional felling of trees must be done with the OEM on site. Care must be taken to remove only those trees flagged for removal. Clearing of trees equal to or greater than 1 m DBH is not permitted unless approved by Parks Canada
- .7 In areas where old, rotted stumps (i.e., they were present prior to the onset of the Project), large logs and root wads, debris piles, etc. are found, salvages of this
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cover habitat itself will be conducted to protect and limit impacts on wildlife species using this type of habitat. Structures to retain include large (>50 cm diameter) rotten stumps, large (> 50 cm diameter, decay class 3-5) logs, and woodpiles. These should be placed away from the construction footprint of the trail but within 10 m of where they were removed. Densities of these retained structures should be at least as high as the original densities along the trail.

- 1.5 Related Sections .1 Section 01 35 43 - Environmental Procedures.  
.2 Section 01 35 44 – Cultural Resource Procedures.
- PART 2 - PRODUCTS .1 Not Used.
- PART 3 – EXECUTION
- 3.1 Sequence of Operation .1 To minimize impacts to the existing vegetation the Work shall be performed in a manner to avoid of passages of heavy equipment over roots of trees that are to remain standing, The Work shall proceed sequentially along the trail: clearing (mostly complete) grubbing, then topsoil stripping and side casting or removal, mineral soil excavation to subgrade over a short section immediately followed by placing the geotextile and root barrier, and placing of sub-grade fill and sub-base material. Trucks bringing granular fill into the trail shall be used to back haul excess soil from the site. The subgrade shall not be tracked on by machines and shall not be left exposed overnight. Survey is to be performed first before grubbing begins and then again once grubbing has been completed on slope.
- .2 During clearing, grubbing, and stripping works, the contractor must set aside and store all of the native organics that are stripped from the site, and many of the large stumps and logs to be re-used during site remediation. These items can be stored on site, space permitting, or can be temporarily stored at the High Point storage area within the Park Reserve (within 5 km of the project site)
- .3 All cut and fill slopes, as well as all trail shoulders are to be covered in minimum 15 cm of native organics, with C32BD Erosion Control Blankets (ECB) installed overtop. ECB shall be secured with hooked rebar "pins". ECB may be omitted on slopes less than 5 m in height, as directed by the Geotechnical Engineer and OEM.
- .4 Large woody debris (stumps, logs, etc.) salvaged from the site during grubbing/stripping are to be placed on top of the ECB, as directed by the Geotechnical Engineer and OEM.
- .5 Depending on the reach of machinery, slope remediation may need to be done incrementally. The contractor must plan the work stages accordingly to ensure this final step of slope remediation can be completed as intended.
- 3.2 Preparation .1 Inspect site and verify with DR, items designated to remain.  
.2 A minimum of 15 days prior to work within a section of trail the Contractor shall review the alignment for danger trees (WorkSafe BC requires trees within 1.5 tree lengths to be reviewed) and report findings to OEM and DR. PCA may require special measures as these trees often have significant wildlife value.
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- .3 The Contractor will hire a certified danger tree assessor as per Worksafe BC who will identify, or arrange to have identified, danger trees requiring falling. These trees will remain on the forest floor after falling.
  - .4 OEM must be notified by the Contractor at least 10 days prior to clearing activities to complete all necessary pre-work surveys. See environmental procedures for detailed information.
  - .5 The Contractor must clearly mark the clearing and grubbing limits in the field prior to the commencement of work. Trees identified for removal must be clearly marked.
- 3.3 Clearing
- .1 Clear work area by cutting trees and brush flush with ground, except in areas where hand clearing is required. Cut hand cleared areas to within 150 mm of ground, including brush clearance.
  - .2 Cut off branches and cut down trees overhanging cleared area as required for safety and in accordance with the Contract Documents. Trees on either side of trail shall be limbed to a height of 7 m to accommodate unloading asphalt trucks.
  - .3 Small areas of additional clearing to create local widenings of the trail may be identified by the DR.
  - .4 Trunks, branches, and vegetation up to 120 mm in diameter not retained on site is to be removed and disposed of at J. Robbins site. Timber over 120 mm diameter shall be cut to manageable lengths not less than 4m and delivered to a stockpile area within the Park Reserve identified by the DR.  
  
A portion of stumps & woody debris is to be retained on site (or at storage location) to be placed on top of organics in disturbed areas at the direction of the OEM & geotechnical engineer.
  - .5 Merchantable timber will be delivered to a location within the Park Reserve, as directed by the DR.
  - .6 Protection of remaining mature trees in the work area is critically important during construction. The Contractor must employ all possible methods to reduce impact to mature trees (>500mm) in the work area and avoid additional removals, and damage to limbs or root systems of mature trees. Any removal or modification of mature trees deemed necessary by the Contractor to complete the work must first be reviewed and approved by the Owner, OEM & DR. Removal of trees 1m diameter in size or greater will not be permitted.
- 3.4 Grubbing
- .1 ~~Grub out stumps, roots, and embedded logs to 200mm below existing ground elevation except where lesser amount is approved by the DR. A number of existing stumps (and possibly logs) will remain in place, as such, removal of stumps and logs must be pre-approved by the geotechnical engineer and OEM. Grub out stumps, roots, and embedded logs to match excavation limits. Do not disturb adjacent existing tree root systems and/or the slope.~~
  - .2 The OEM may designate nearby specimen trees for special protection of their root systems. The Contractor shall minimize disturbance to the root system by reducing depth of grubbing and organic removal, avoiding stump removals in the
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- immediate area (stump grinding may be required), and avoid driving over the protected roots with large vehicles. All trees shown on “Cleared Tree Plan” , drawing E-03 as being retained will require the special protection of their root systems.
- .3 The OEM will designate large stumps to be removed and set aside ~~for use within stream enhancement works or to be~~ placed within the forest adjacent to the trail.
- .4 Grubbed material shall be disposed of at J. Robbins site.
- .5 Protection of amphibians – The Contractor shall make allowances during removal of stumps and large woody debris for the OEM to visually monitor for amphibians in accordance with Section 01 35 43 – Environmental Procedures.
- .6 The truck dump piles of clearing and grubbing waste at J. Robbins site should be dumped as per direction from J. Robbins Construction Ltd. Personnel.
- 3.5 Removal and Disposal .1 Cut timber greater than 125 mm diameter to 4.0m to 5.0m lengths and cold-deck as required by British Columbia Ministry of Forests. Transport this material identified by the DR to a storage area within the Park Reserve. Stockpiled timber remains the property of Parks Canada.
- .2 Removal and disposal of other clearing and grubbed material at the J. Robbins site is the responsibility of the Contractor. All organic material is to be retained within the Pacific Rim National Park Reserve.
- 3.7 Burning .1 Burning is not allowed within Park Reserve boundaries.
- 3.8 Finished Surface .1 Leave ground surface in condition suitable for stripping of topsoil.
- .2 Provide temporary erosion protection as necessary between clearing and grubbing and stripping.

**END OF SECTION**

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